Aleutian Islands 2014 Report Card

Region-wide

- The North Pacific atmosphere-ocean system during 2013-2014 featured the development of **strongly positive SST anomalies south of Alaska**. Warm upper ocean conditions persisted through the summer of 2014.
- The winter NPI was positive, implying **a weak Aleutian Low and suppressed storminess**.
- The wind anomalies produced **reduced flow of Pacific water northward through Unimak Pass and a relatively broad and weak Alaskan Stream** over much of the last year, with spring 2014 being an exception.
- **Water column temperatures were the warmest** recorded during survey years since 1994.
- **Biomass of pelagic forager and apex fish predator foraging guilds increased across the region** between the 2012 and 2014 surveys, although patterns varied among species. The overall increase **may indicate a response to the warmer water, such as increased catchability or habitat shift, or reflect high variances commonly observed in estimated biomass among survey years**.
- Several species show longitudinal trends in the fish pelagic foragers foraging guild: the **biomass of walleye pollock increases towards the east**, whereas that of **northern rockfish and Pacific ocean perch increase towards the west**.
- **Fishing patterns have recently changed throughout the system**, largely in response to increased protection for Steller sea lions, although the final impacts to individual fishing sectors are currently unknown.
- The amount of **area with observed trawling has declined overall**, likely reflecting less fishing effort, particularly in the western ecoregion.
- In general, **schools in the Aleutian Islands have shown no recent trends in enrollment**, possibly indicating that communities with year-round residents that experience direct interactions with the ecosystem through residential and subsistence activites are stable.

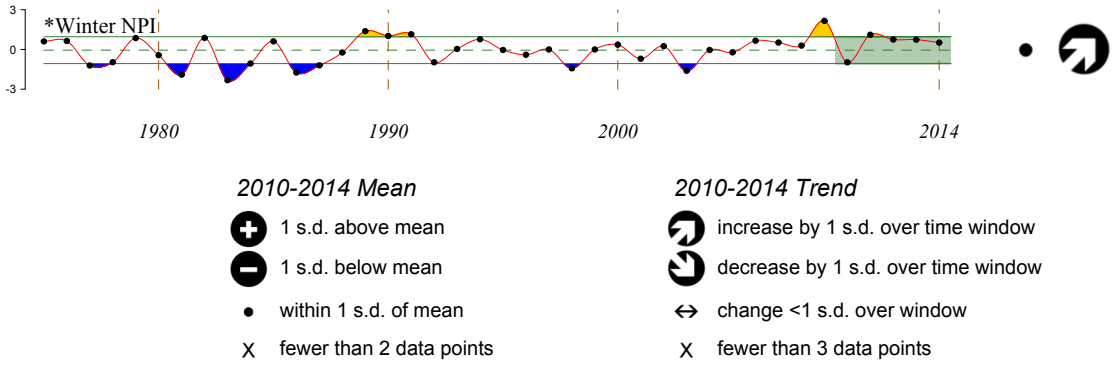

Figure 2: The winter North Pacific Index time series. * indicates time series updated in 2014.

Western Aleutian Islands Ecoregion

- While the reproductive success of planktivorous least auklets has remained stable, that of crested auklets has declined to levels not seen since the late 80's and 2003. Crested auklets rely more on euphausiids than the copepod-specialist least auklets, thus **we can speculate that euphausiid availability has declined**.
- Forage fish trends as indicated in tufted puffin chick meals have varied over the long term. In general, sand lance have been absent since 2010, and age-0 gadids uncommon. The **number of hexagrammids (likely age-0 Atka mackerel) has increased in the past two years, possibly indicating high recruitment**.
- The **pelagic fish foraging guild biomass increased** from 2012 to the highest value observed. All four species - pollock, Pacific ocean perch, northern rockfish, and Atka mackerel - contributed to this trend.
- Although the **overall biomass of the fish apex predator foraging guild declined from 2012**, Pacific cod and Kamchatka flounder biomasses increased.
- Steller **sea lions remain well below their long-term mean** in this ecoregion. The 2014 counts were the lowest in the time series.
- The **amount of area trawled increased in 2013** relative to the dramatic declines of the previous two years that were due to recent measures aiming at increasing protection for Steller sea lions.

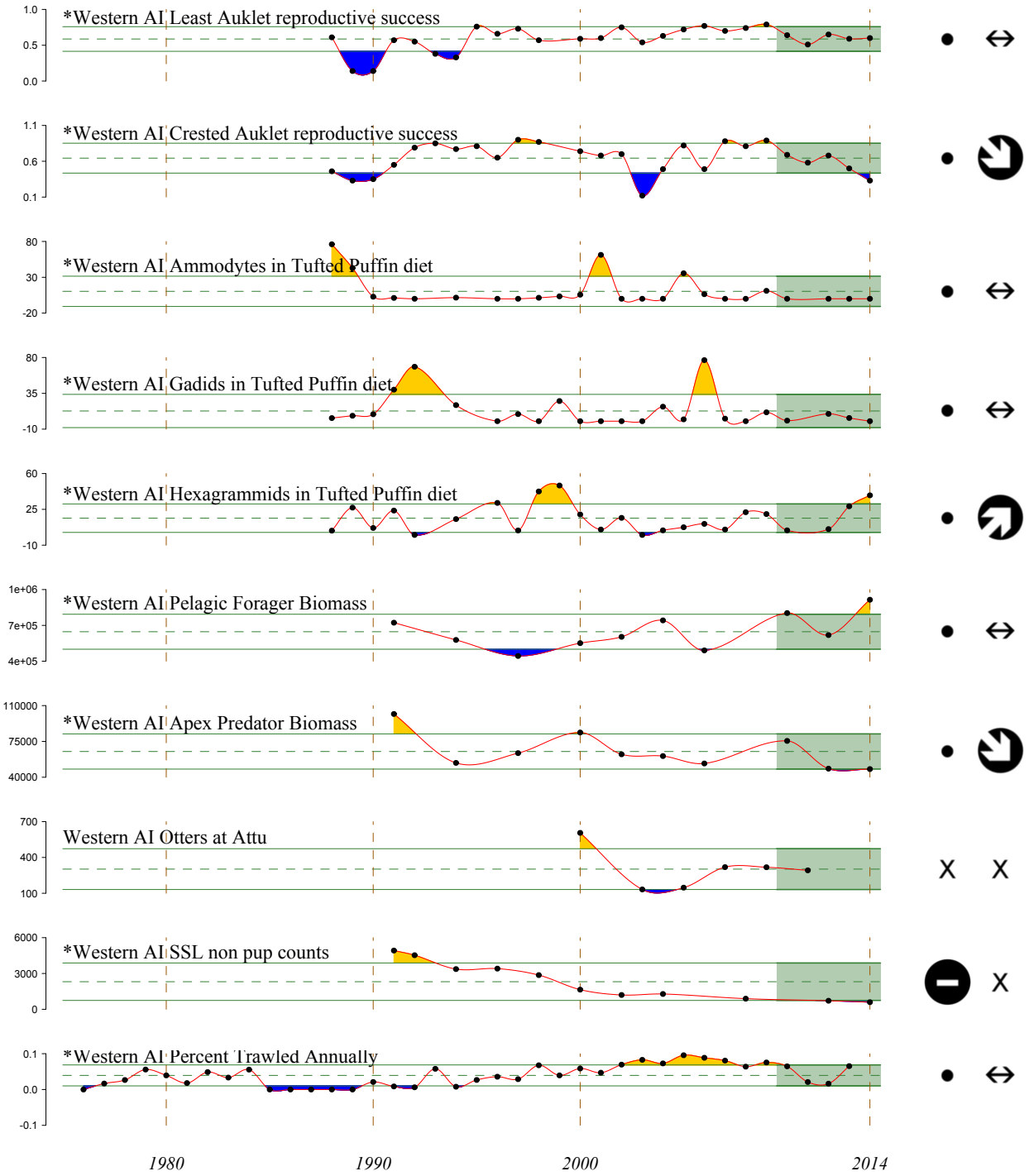

Figure 3: Western Aleutian Islands ecoregion indicators. * indicates time series updated in 2014. See Figure 2 for legend.

Central Aleutian Islands Ecoregion

- Recent trends in auklet reproductive success are unknown but the **continued positive state of the NPI indicates favorable foraging conditions for planktivorous auklets**.
- The **pelagic fish foraging guild biomass increased** overall from 2012 to 2014, nearly reaching the peak biomass observed in 2010. Increases were seen in all species but Pacific ocean perch.
- The **slight increase in the fish apex predator foraging guild biomass** from 2012 to 2014 was largely driven by Pacific cod, arrowtooth flounder and Kamchatka flounder.
- Neither otter or sea lion counts were available, although updated data should be available next year with 2014 surveys.
- **School enrollment has shown no trend** in recent years, following a decline since peak enrollment in 2000, and potentially indicating stability in the residential communities.
- The **amount of area trawled has been stable in the past few years**.

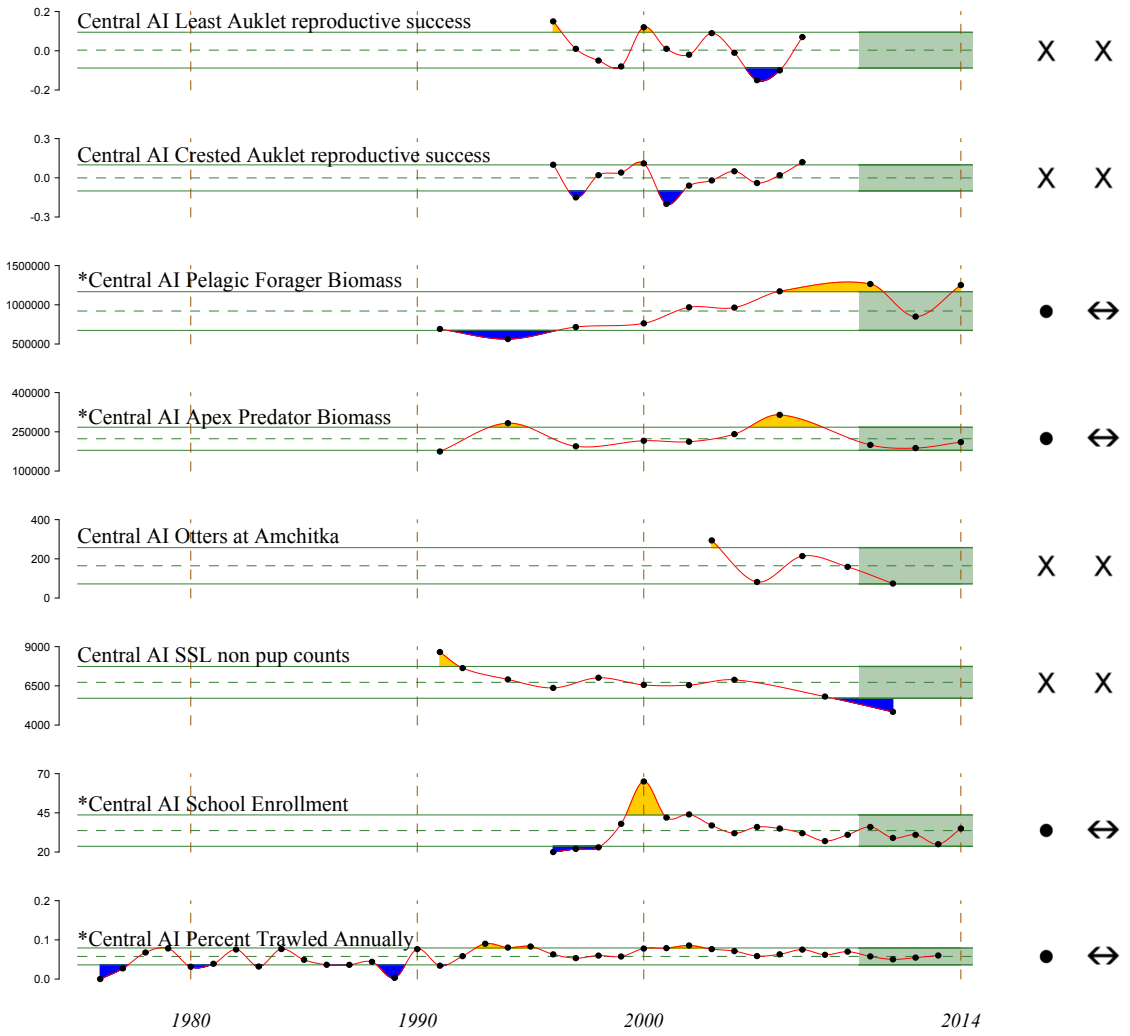

Figure 4: Central Aleutian Islands ecoregion indicators. * indicates time series updated in 2014. See Figure 2 for legend.

Eastern Aleutian Islands Ecoregion

- Relative abundances of **gadids and *Ammodytes*** in prey brought back to feed puffin chicks **have shown opposite trends, although both declined from 2013 to 2014**. Chick-provisioning patterns suggest puffins are responding to changes in forage fish availability.
- Pollock, Pacific ocean perch, and northern rockfish all contributed to the **increase in fish pelagic forager biomass** from 2012, although there has been an overall declining trend over the past 3 surveys.
- **Fish apex predator foraging guild biomass increased** from the low values in 2012. Pacific cod and arrowtooth flounder contributed most to the increase.
- **School enrollment has shown an overall increasing trend in the past five years**, although 2014 attendance declined slightly from the previous year. These numbers suggest a positive trend in community expansion in the eastern ecoregion communities.

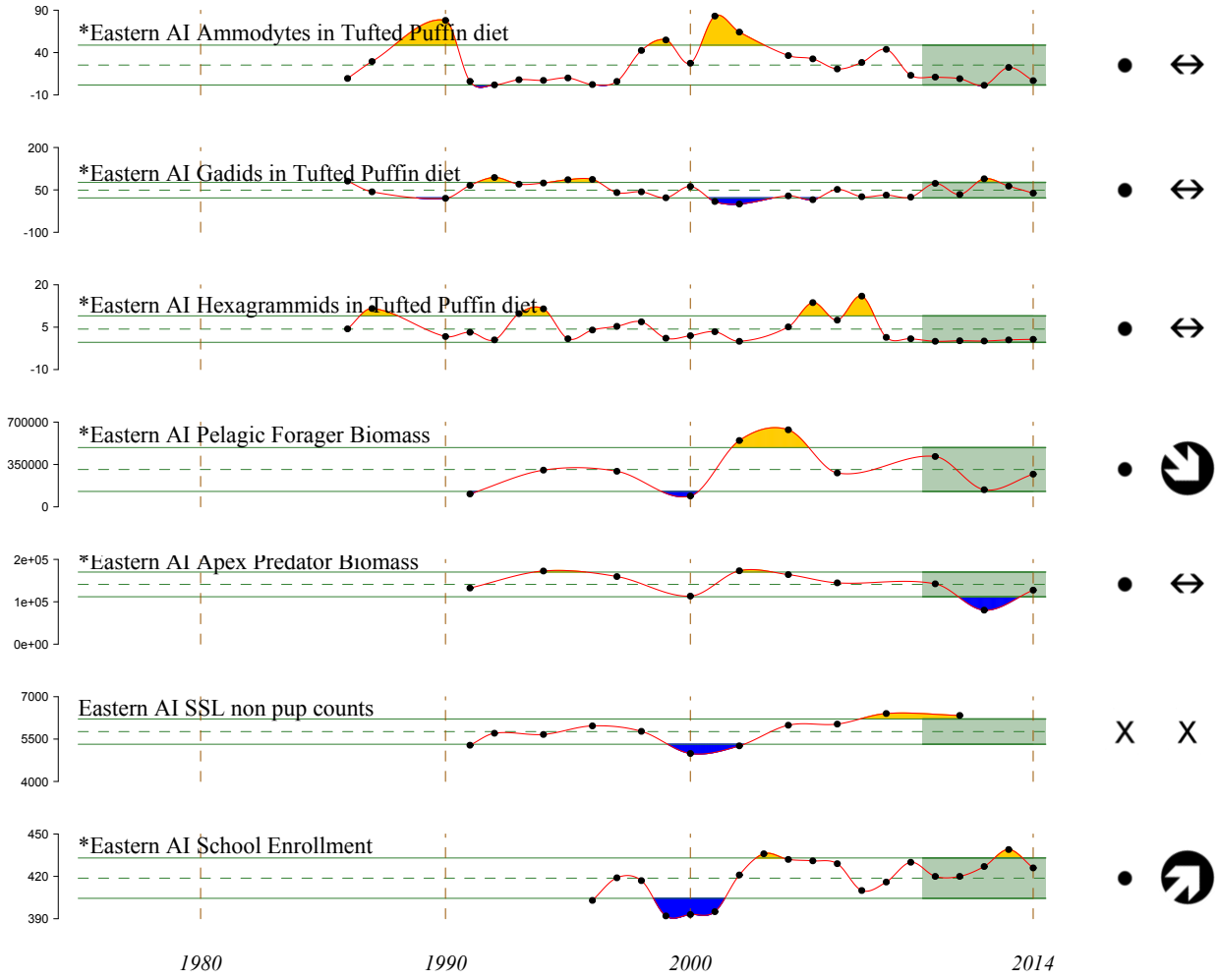

Figure 5: Eastern Aleutian Islands ecoregion indicators. * indicates time series updated in 2014. See Figure 2 for legend.